

Remarks

Reexamination and reconsideration of this application, as amended, is requested. Claims 1-20 remain in the application. No new claims have been added or canceled.

Applicants believe there is no charge for this response because no new claims have been added.

Support for Amendments

As indicated above, claim 7 have been amended. Support for the amendments is shown at least by the examples illustrated in FIGs. 1 – 7 and described at least on page 9, line 20.

Applicants respectfully submit that no new matter has been added.

Response to the 35 U.S.C. §103(a) Rejection

The Office Action rejects claims 1 – 8, 10, 13 – 15 and 17 - 20 under 35 U.S.C. §103(a) as being unpatentable over Yandrofski et al. (5,589,845) in view of Coe (4,710,775).

Applicants begin with claim 1. Claim 1 specifically recites:

“A phased array antenna comprising:

a plurality of radiating elements;

a feed line assembly;

a ground plane positioned between the plurality of radiating elements and the feed line assembly;

a phase shifter coupled to the feed line assembly;
the ground plane having a plurality of pairs of orthogonal openings, each pair of orthogonal openings positioned adjacent to one of the radiating elements; and
the feed line assembly including a plurality of microstrip lines, each of the microstrip lines including a first portion positioned adjacent to one of the pairs of orthogonal openings.”

Yandrofski appears to disclose ferroelectric and superconducting thin films used in combination to produce low-loss passive microwave and millimeter wave devices which are frequency tuneable. Various metal oxide superconducting and ferroelectric thin films can be deposited in numerous multilayer geometries via a variety of deposition techniques to produce devices which can manipulate microwave and millimeter wave signals through the application of voltage bias signals across the ferroelectric films.

Further, Yandrofski appears to disclose tunable antenna arrays incorporating the combined superconducting and ferroelectric thin film structures and geometries which allow for electrical steering of beam patterns by the application of one or more voltage bias signals to ferroelectric thin film gratings.

Coe appears to disclose a parasitically coupled, complementary slot dipole antenna element that includes a driven, cavity-backed slot antenna element and a parasitic dipole element transverse to the slot of the cavity-backed slot antenna element.

Applicants respectfully submit that the Examiner cannot satisfy the basic requirements of a prima facie case of obviousness by using Yandrofski and Coe to reject pending independent Claim 1 and the associated dependent claims 2 – 20. For

the Examiner to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the references. Second, there must be some reasonable expectation of success. Finally, the references when combined must teach or suggest all of the claimed limitations. Manual of Patent Examining Procedure, Section 2143. For the reasons articulated below, the Applicants believe that in the present case, the Examiner has not met this burden.

First, Applicants submit that Yandrofski cannot be properly combined with Coe to teach the present invention as claimed. There must be some suggestion or motivation to combine the references such that they teach the elements of the present invention, neither of which can be established in Yandrofski and/or Coe. Applicant submits that there is no such teaching or motivation either in Yandrofski or Coe. Indeed, Yandrofski teaches "tunable antenna arrays incorporating the combined superconducting and ferroelectric thin film structures". A major difficulty with the tunability of the present invention was the ability to operate the device at room temperature. The Applicant discloses in great detail the material and structure that enables the present invention without the requirement that it be operated at superconducting temperatures. In addition to no suggestion or motivation, it is unlikely that Yandrofski would even consider implementing the parasitically coupled, complementary slot dipole antenna of Coe into his invention as his work is primarily accomplished at superconducting temperatures and Coe is not.

Secondly, Applicants respectfully submit that the Examiner has not presented any evidence where there would be a reasonable expectation of success by combining Yandrofski and Coe to teach the present invention. Although the Examiner has stated that it would be obvious to combine the cited art, Applicants submit that the Office Action fails to describe how one can combine the teachings of Yandrofski with Coe to teach the present invention.

Response to the Double Patenting Rejection

The Office Action also rejected claims 1 – 20 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 – 19 of U.S. Patent No. 6,377,217. Applicant submits with the present response a timely filed terminal disclaimer in compliance with 37 CFR 1.321 (c) signed by attorney of record. Thus, Applicant believes this rejection traversed.

Conclusion

The foregoing is submitted as a full and complete response to the Office Action mailed 12/31/2003 and it is submitted that claims 1-20 are in condition for allowance. Reconsideration of the rejection is requested. Allowance of amended claims 1-20 is earnestly solicited.

Should it be determined that an additional fee is due under 37 CFR §§1.16 or 1.17, or any excess fee has been received, please charge that fee or credit the amount of overcharge to deposit account #502697.

If the Examiner believes that there are any informalities which can be corrected by an Examiner's amendment, a telephone call to the undersigned at (202) 607-4607 is respectfully solicited.

Respectfully submitted,



James S. Finn
Reg. No. 43,105

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James S. Finn
Registered Patent Attorney
8650 Southwestern Blvd. Suite 2825
Dallas, Texas 75206
202-607-4607